## SOILS, WATER, WATERSHEDS, AIR QUALITY, GEOLOGY AND MINERALS
## Draft - Glossary of Terms

**Acid Deposition:** Any form of deposition on water, land, and other surfaces that increases their acidity by contamination with acid pollutants, such as sulphur oxides, sulphates, nitrogen oxides and nitrates, and ammonium compounds. The deposition can be either dry (as in the adsorption of acid pollutants to particles) or wet (as in acid precipitation).

**Acre-Foot:** The volume (as of irrigation water) that would cover 1 acre to a depth of 1 foot (43,560 cubic feet).

**Air Quality:** A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

**Air Quality Standard:** Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

**Air Quality Control Region:** A geographic area established within a state (counties, urbanized areas, consolidated metropolitan statistical areas, etc.), which, due to existing air quality and/or projected growth rates, has the potential for exceeding any national emission standard for air pollutants.

**Alluvial Deposit:** Sedimentary matter, such as sand, mud, and gravel, deposits by flowing water, generally of comparatively recent times.

**Ambient (air):** The surrounding atmospheric conditions to which the general public has access.

**Aquifer:** A groundwater bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

**Attainment Area:** An area that meets a Federal primary or secondary ambient air quality standard for the pollutant.

**Basin**: A depressed area having no surface outlet (*topographic basin*); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (*water, aquifer, hydrology*); a subsurface geologic feature characterized by deposition of porous sedimentary units, such as sand and gravel, that may contain the fluid minerals oil and gas in the pore spaces, or depositionn of layers of coal or other solid mineral (*geologic basin);* a depression in the earth's surface, the lowest part often filled by a lake or pond (*lake basin*); a widened part of a river or canal (*drainage, river, stream basin*).

**Basin and Range:** A geological and geographical landform common to western North America and characterized by a series of tilted-fault block mountain ranges and broad intervening basins.

**Biological Soil Crust:** A living community of lichen, cyanobacteria, algae, and moss growing on the soil surface, creating a crust of soil particles bound together by organic materials. Biological soil crusts are also known as cryptogamic, microbiotic, cryptobiotic, and microphytic crusts and are commonly found in semi-arid and arid environments throughout the world.

**Carbon Monoxide (CO):** A colorless, odorless, poisonous gas, produced by incomplete burning of carbon-based fuels including gasoline, oil and wood. Carbon monoxide also is produced from incomplete combustion of many natural and synthetic products.

**Class I Area (for air quality):** Certain wilderness areas greater than 5,000 acres, national memorial parks greater than 5,000 acres, national parks greater than 6,000 acres, and international parks that were in existence on or before August 7, 1977. Class I areas are those that have the most stringent degree of protection from future degradation of air quality.

**Class II Area (for air quality):** By default, all areas not designated as Class I areas or Class II Wilderness areas.

**Class II Wilderness Area (for air quality):** Areas that do not qualify as Class I areas, but that are deserving of more preservation than a Class II area. Class II Wilderness areas include wilderness areas established by the Wilderness Act.

**Clean Air Act:** Federal legislation governing air pollution. The Clean Air Act established National Ambient Air Quality Standards for carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of Significant Deterioration classifications define the allowable increased levels of air quality deterioration above legally established levels.

**Clean Water Act (CWA):** Federal legislation governing water quality. The CWA refers to a series of Federal laws and regulations that attempt to restore the beneficial uses of surface waters of the United States (also referred to as "waters of the U.S."). The CWA regulates such programs as the National Pollutant Discharge Elimination System (NPDES), a permit-based set of regulations that control the discharge of pollution to U.S. waterways from an individual point (for example, the end of a pipe) and the discharge of concentrated storm water from highways, cities, and other built environments. The CWA also regulates the placing of fill in streams and washes for the construction of road crossings, pipelines, and power lines. The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers, which in some cases has extended responsibility to the individual states, regulate these programs.

**Cryptobiotic Soil:** Living soil crusts composed of small plants such as soil lichens, mosses, green algae, microfungi, and bacteria. These crusts play an important role in the desert ecosystem by stabilizing sand deposits and forming primitive soil horizons. These knobby black crusts are well-developed in the deserts of Utah, Arizona, Colorado and New Mexico.

**Cubic Feet Per Second (cfs):** As a rate of stream flow, a cubic foot of water passing a reference section in one second of time. One cfs flowing for 24 hours will yield 1.983 acre-feet of water.

**Desert Pavement:** A surface of angular, interlocking fragments of pebbles, gravel, or boulders found in arid and semi-arid environments. These surfaces are found on level or gently sloping desert flats, fans, or bajadas and lake and river terraces. Desert pavement forms under the influence of daily thermal expansion and contraction as sandy particles slowly sort downward, leaving the larger stones at the surface.

**Desired Future Condition (DFC):** Desired land use planning outcomes in terms of specific goals, standards, and objectives for resource protection.

**Ephemeral Stream:** A stream that flows only in direct response to precipitation, and its channel is at all times above the water table.

**Erosion:** The wearing away of the land surface by running water, wind, ice, or other geologic agents, and by such processes as gravitation creep.

**Evaporation:** Conversion of water from the liquid phase to the gaseous phase.

**Extraction:** The removal of mineral resources from the land by mining, quarrying, or excavation.

**Floodplain:** The area that borders a water body and is subject to flooding on a periodic basis.

**Floodprone Area Width:** The area that would be expected to be covered by water if the wetted stream depth were twice as high as the full bank height, determined at the deepest part on a given transect. This width is then extrapolated over the length of the stream reach by averaging several random transects taken within the project area.

**Fluid Minerals:** In this case, oil, gas, helium, carbon dioxide, coalbed methane, and geothermal resources.

**General Conformity Requirements:** All Federal actions must "conform" with the State Implementation Plan (SIP) as approved or promulgated by the U.S. Environmental Protection Agency. The purpose of the general conformity program is to ensure that actions taken by the Federal government do not undermine state or local efforts to achieve and maintain the National Ambient Air Quality Standards. Before a Federal action is taken, it must be evaluated for conformity with the SIP.

**Grandfathered Mining Claim:** A mining claim that was recorded prior to establishment of the monument. The claim remains active and is retained by the claimant subject to validation of the claim's economic value.

**Haze:** An atmospheric aerosol of sufficient concentration to be visible. The particles are so small that they cannot be seen individually, but are still effective in scene distortion and visual range restriction.

**Locatable Mineral:** Any valuable mineral that is not saleable or leasable including gold, silver, copper, uranium, etc., that may be developed under the General Mining Law of 1872.

**Mineral Entry:** The location of mining claims by an individual to protect his/her right to a valuable mineral.

**Mineral Potential:**

- High: Those lands currently producing oil or gas or having high current industry interest.
- Moderate: Those lands, which have demonstrated oil and gas potential based on favorable geologic environments.
- Low: Those lands where either the geologic environment appears to be favorable for the accumulation of oil and gas, or where little or no information is available to evaluate the oil and gas potential.

**Mineral Rights:** Outstanding third-party rights or an interest in minerals not owned by the person or party conveying the land to the United States. Mineral rights are an exception in a deed that is the result of prior conveyance separating title of certain minerals from the surface estate.

**Mineral Withdrawal:** A withdrawal for public lands, which are potentially valuable for leasable minerals. This precludes the disposal of the lands except with a mineral reservation, or unless the lands are found to not be valuable for minerals.

**National Ambient Air Quality Standards (NAAQS):** The allowable concentrations of air pollutants in the air specified by the Federal government. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

**New Source Review:** The term used to describe Clean Air Act provisions applicable to certain new or modified stationary sources that emit, or will emit, criteria air pollutants and are located in air quality control regions.

**Nitrogen Oxides:** Produced from burning fuels, including gasoline and coal. Nitrogen oxides are smog formers, which react with volatile organic compounds to form smog. Nitrogen oxides are also major components of acid rain.

**Nonattainment Area:** An area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) any of the Federal primary or secondary ambient air quality standards for the pollutant.

**Non-Major Permits:** Permits for non-major sources include permits for sources that do not have the physical or operational capacity to emit major source levels of air pollutants.

**Ozone ($O_3$):** A gas that is a variety of oxygen. The oxygen gas found in the air consists of two oxygen atoms joined together; this is molecular oxygen. Ozone consists of three oxygen atoms joined together into an ozone molecule. Ozone occurs in nature; it produces the sharp smell you notice near a lightning strike. High concentrations of ozone gas are found in a layer of the atmosphere–the stratosphere–high above the earth. Stratospheric ozone shields the earth against harmful rays from the sun, particularly ultraviolet B. Smog's main component is ozone; this ground-level ozone is a product of reactions among chemicals produced by burning coal, gasoline and other fuels, and chemicals found in products including solvents, paints, hairsprays, etc.

**Particulate Matter:** Includes dust, soot, and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of diesel fuels by trucks and buses, incineration of garbage, mixing, and application of fertilizers and pesticides, road construction, industrial processes such as steel making, mining operations, agricultural burning (field and slash burning), and operation of fireplaces and woodstoves.

**pH:** A number used by chemists to express the acidity of solutions, including water. A pH value lower than 7 indicates an acidic solution, a value of 7 is neutral, and a value of higher than 7 indicates an alkaline solution. Most groundwater in the United States has pH values ranging from about 6.0 to 8.5.

**Playa:** A level plain or shallow, closed basin in desert terrain, with no drainage outflow, that marks the site of a present or former lake. A dry lake bed characterized by fine-grained clayey, mineral-rich sediments.

**Potable Water:** Water that is suitable for drinking.

**Prevention of Significant Deterioration:** A Clean Air Act requirement to include a permit review process applicable to the construction and operation of new and modified stationary sources in attainment areas.

**Reclamation:** The process of converting disturbed land to its former use or other productive uses.

**Reserved Mineral Rights:** The retention of ownership of all or part of the mineral rights by a person or party conveying land to the United States. Conditions for the exercising of these rights have been defined in the Secretary of the Interior's "Rules and Regulations to Govern Exercising of Mineral Rights Reserved Conveyance to the United States" attached to and made a part of deeds reserving mineral rights.

**Restore/Restoration:** The process of restoring site conditions as they were before land disturbance. Note: restoration involves restoring a site to a specific point in time.

**Riparian:** Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow along, around, or in wet areas.

**Riparian Habitat:** Riparian habitat is an ecological transition between an in-stream community of plants and animals and the adjacent, upland community. Normally the term is used for perennial, or year around flowing streams. However, in Arizona the term xeroriparian habitat is used to describe the distinct plant and animal communities that concentrate around dry washes and are sustained by desert storms.

**Saleable Minerals:** Minerals that may be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

**Saturated:** When referring to soil, the maximum amount of water that can be held either when the soil is frozen or the spaces between the soil particles are filled with water. Any additional seepage over saturated soil will result in runoff.

**State Implementation Plan (SIP):** A state plan approved by the U.S. Environmental Protection Agency for the establishment, regulation, and enforcement of air pollution standards.

**Sulfur Dioxide ($SO_2$):** A gas produced by burning coal, most notably in power plants. Some industrial processes, such as production of paper and smelting of metals, produce sulfur dioxide. Sulfur dioxide is closely related to sulfuric acid, a strong acid. Sulfur dioxide plays an important role in the production of acid rain.

**Total Dissolved Solids (TDS):** The total quantity (reported in milligrams per liter) of dissolved materials in water.

**Unclassified Area (for air quality):** An area that cannot be classified on the basis of available information as meeting or not meeting the Federal primary or secondary ambient air quality standard for the pollutant.

**Volatile Organic Compounds (VOCs):** Organic chemicals all contain the element carbon. Organic chemicals are the basic chemicals found in living things and in products derived from living things, such as coal, petroleum, and refined petroleum products. Volatile chemicals produce vapors readily; at room temperature and normal atmospheric pressure, vapors escape easily from volatile liquid chemicals. Volatile organic chemicals include gasoline, industrial chemicals such as benzene, solvents such as toluene and xylene, and tetrachloroethylene (perchloroethylene, the principal dry cleaning solvent). Many volatile organic chemicals are also hazardous air pollutants.

**Water Table:** The surface in a groundwater body where the water pressure is atmospheric. It is the level at which water stands in a well that penetrates the water body just far enough to hold standing water.

**Watershed:** The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge.

**Wetlands:** Lands including swamps, marshes, bogs, and similar areas, such as wet meadows, river overflows, mud flats, and natural ponds.